

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An image reading apparatus comprising:

a storage unit which stores reference image data including color tones of the reference image data, generated based on image data for reference color patches taken from a reference scan of the reference color patches to provide stored image data of the reference color patches;

a display unit which reproduces two images, a first image based on processed image data taken from a comparison scan of the same reference color patches after a predetermined plurality of images have been scanned and a second image based on the reference image data stored in the storage unit containing the stored image data taken from the reference scan of the reference color patches, and which displays the two images so as to be contrasted with each other by said color tones, wherein the reference scan and the comparison scan are scans of the same reference color patches; and

an instruction unit which issues an instruction to execute calibration of conversion characteristics in the processing for color conversion based on the two images displayed on the display unit.

Claim 2 (Original): The apparatus according to claim 1, further comprising an averaging unit which averages the read image data for the reference color patches, on a time varying basis,

wherein the image data averaged by the averaging unit is used as the read image data for the reference color patches that is displayed on the display unit as one of the images to be contrasted.

Claim 3 (Original): The apparatus according to claim 2, further comprising a storage unit which stores the image data averaged by the averaging unit,

wherein the averaging unit averages a currently read image data and the image data fetched from the storage unit.

Claim 4 (Original): The apparatus according to claim 1, wherein the color conversion is processing for converting an RGB space that is specific to the color image sensor, to a standard color space, and

the reference image data stored in the storage unit is data for the standard color space.

Claim 5 (Original): The apparatus according to claim 1, wherein the reference image data is data based on colorimetric values of the reference color patches.

Claim 6 (Original): The apparatus according to claim 5, wherein the reference image data is based on data obtained by adding a predetermined variation to the colorimetric values of the reference color patches.

Claim 7 (Original): The apparatus according to claim 1, wherein the reference image data is based on data obtained by reading the reference color patches in an initial state at the time of manufacture of the image reading apparatus by the color image sensor to obtain image data for the reference color patches, and by performing color conversion on the image data.

Claim 8 (Currently Amended): An image processing apparatus provided with an image reading apparatus comprising:

a light source which emits light, to which an image is exposed;

a color image sensor which reads the image as a target to be read exposed to the light to obtain image signals, and outputs the image signals;

a color converter which subjects the image signals to color conversion to obtain digital color image data and outputs the digital color image data;

a storage unit which stores reference image data including color tones of the reference image data, generated based on reference color patches taken from a reference scan of the reference color patches to provide stored image data of the reference color patches;

a display unit which reproduces two images, a first image based on processed image data taken from a comparison scan of the same reference color patches by the color image sensor after a predetermined plurality of images have been scanned, and a second image based on the reference image data stored in the storage unit containing the stored image data taken from the reference scan of the reference color patches, and which displays the two images so as to be contrasted with each other by said color tones, wherein the reference scan and the comparison scan are scans of the same reference color patches; and

an instruction unit which issues an instruction to execute calibration of conversion characteristics in the processing for color conversion based on the images displayed on the display unit.

Claim 9 (Currently Amended): An image reading method comprising the steps:

emitting light by a light source and exposing an image to the light;

reading the image as a target to be read exposed to the light by a color image sensor to obtain image signals and outputting the image signals;

color-converting the image signals to digital color image data and outputting the digital color image data;

storing reference image data including color tones of the reference image data, generated based on reference color patches taken from a comparison scan of the reference color patches to provide stored image data of the reference color patches taken after a predetermined plurality of images have been taken by the reading step;

reproducing two images, a first image based on data taken from a reference scan of the same reference color patches at a time of manufacture of an image reading apparatus by the color image sensor in the reading step to obtain image data for the reference color patches and by converting the image data in the color converting step and a second image based on the reference image data stored in the storing step containing the stored image data of the reference color patches taken from the comparison scan of the same reference color patches, and displaying the two images so as to be contrasted with each other by said color tones, wherein the reference scan and the comparison scan are scans of the same reference color patches; and

issuing an instruction to execute calibration of conversion characteristics in the color converting step based on the images displayed in the displaying step.

Claim 10 (Original): The method according to claim 9, further comprising an averaging step of averaging the image data obtained by reading the reference color patches in the reading step, on a time varying basis,

wherein the image data averaged in the averaging step is used as the read image data for the reference color patches that is displayed in the display step as one of the images to be contrasted.

Claim 11 (Original): The method according to claim 10, further comprising a storing step of storing the image data averaged in the averaging step,

wherein in the averaging step, a currently read image and the image stored in the storing step are averaged.

Claim 12 (Original): The method according to claim 9, wherein the color converting step is a step of converting an RGB space that is specific to the color image sensor, to a standard color space, and

the reference image data stored in the storing step is data for the standard color space.

Claim 13 (Original): The method according to claim 9, wherein the reference image data is data based on colorimetric values of the reference color patches.

Claim 14 (Original): The method according to claim 13, wherein the reference image data is based on data obtained by adding a predetermined variation to the colorimetric values of the reference color patches.

Claim 15 (Original): The method according to claim 9, wherein the reference image data is based on data obtained by reading the reference color patches in the initial state at the time of manufacture of the image reading apparatus by the color image sensor in the reading step to obtain image data for the reference color patches, and by converting the image data in the color converting step.

Claim 16 (Currently Amended): A computer readable medium encoded with a computer program which makes a computer execute the steps of:

reading reference color patches taken from a reference scan of the reference color patches by a color image sensor to obtain image data for the reference color patches;

performing processing on the image data for the reference color patches, and outputting the processed image data;

storing reference image data including color tones of the reference image data, generated based on the processed image data for the reference color patches to provide stored image data of the reference color patches;

reproducing two images, a first image based on processed image data from the test of taken from a comparison scan of the same reference color patches after a predetermined plurality of images have been scanned and a second image based on the reference image data stored in the storage step containing the stored image data of the reference color patches taken from the reference scan of the reference color patches, and displaying the two images so as to be contrasted with each other by said color tones, wherein the reference scan and the ~~comparison~~ comparison scan are scans of the same reference color patches; and

issuing an instruction to execute calibration of conversion characteristics in the processing for color conversion based on the images displayed in the displaying step.

Claim 17 (Previously Presented): The medium according to claim 16, further making the computer execute an averaging step of averaging the image data obtained by reading the reference color patches in the reading step, on a time varying basis,

wherein the image data averaged in the averaging step is used as the read image for the reference color patches that is displayed in the display step as one of the images to be contrasted.

Claim 18 (Previously Presented): The medium according to claim 17, further making the computer execute a storing step of storing the image data averaged in the averaging step, wherein in the averaging step, a currently read image and the image stored in the storing step are averaged.

Claim 19 (Previously Presented): The medium according to claim 16, wherein the color converting step is a step of converting an RGB space that is specific to the color image sensor, to a standard color space, and the reference image data stored in the storing step is data for the standard color space.

Claim 20 (Previously Presented): The medium according to claim 16, wherein the reference image data is data based on colorimetric values of the reference color patches.

Claim 21 (Previously Presented): The medium according to claim 20, wherein the reference image data is based on data obtained by adding a predetermined variation to the colorimetric values of the reference color patches.

Claim 22 (Previously Presented): The medium according to claim 16, wherein the reference image data is based on data obtained by reading the reference color patches in the initial state at the time of manufacture of the image reading apparatus by the color image sensor in the reading step to obtain image data for the reference color patches, and by converting the image data in the color converting step.

Claim 23 (Previously Presented): The apparatus according to claim 1, wherein the reference color patches are disposed as a part of the apparatus.

Claim 24 (Previously Presented): The apparatus according to claim 1, wherein the reference color patches are supplied by a user to the apparatus.

Claim 25 (Previously Presented): The apparatus according to claim 8, wherein the reference color patches are disposed as a part of the apparatus.

Claim 26 (Previously Presented): The apparatus according to claim 8, wherein the reference color patches are supplied by a user to the apparatus.

Claim 27 (Previously Presented): The method according to claim 9, wherein the storing reference image data scans said reference color patches disposed as a part of the image reading apparatus.

Claim 28 (Previously Presented): The method according to claim 9, wherein the storing reference image data scans said reference color patches supplied by a user to the image reading apparatus.